For the quadratic form \( p(x, y, z) = x^2 + xy + 2y^2 + 4yz - z^2 \)

A. Give a symmetric matrix \( S \) that is the matrix of this quadratic form.

B. By taking determinants and using Sylvester’s Theorem, determine if \( p \) is positive definite, negative definite, indefinite, or none of these.